

DRAWING AMENDMENTS

The attached 5 sheets of drawings include changes to Figures 4 and 6-9. These sheets, which include Figures 4 and 6-9 replace the original sheets including Figures 4 and 6-9.

Attachment: 5 Replacement Sheets

REMARKSA. Request for Reconsideration

Applicant has carefully considered the matters raised by the Examiner in the outstanding Office Action but remains of the position that patentable subject matter is present. Applicant respectfully requests reconsideration of the Examiner's position based on the amendments to the claims and the following remarks.

B. The Invention

The present invention is directed to a hole-punching processor that can conduct hole-punching at the central position in the lateral direction of a sheet accurately. An image forming apparatus having the hole-punching processor is also disclosed. The hole-punching processor of the invention is simple in structure, small in size and can be produced at low cost.

In one of the novel aspects of the invention, the sheet-edge detector is fixed to the hole-punching device of the hole-punching processor so that the hole-punching device moves in conjunction with the sheet-edge detector to punch a hole in the sheet. Thus, the configuration of the hole-punching processor can be simplified, and the

positional relationship between the hole-punching device and the sheet-edge detector can be accurately maintained. In addition, the algorithm that controls hole-punch processing can be simplified resulting in improved accuracy, reliability and reducing costs.

C. Claim Amendments

Claims 1-19 are original claims in this Application, claims 15-19 having been withdrawn from consideration. This amendment adds claim 20. Claims 1-14 and 20 are therefore presented for further prosecution.

Claims 1 and 9 have been amended to recite that the sheet-edge detector is in a fixed relationship with the hole-punching device, and that the hole-punching device moves in conjunction with the sheet-edge detector in the direction perpendicular to the conveyance direction of the sheet. Support for this amendment can be found at page 29, line 5 to page 30, line 6 and in Figure 3 where hole-punching device 10 and sheet-edge detector 17 are both attached to guide plate 15.

Claim 14 has been amended to be dependent upon claim 9.

Claim 20 has been added to further define the hole-punching processor of claim 1. Support for this claim can

again be found at page 29, line 5 to page 30, line 6 and in Figure 3.

D. Specification and Drawing Amendments

Applicants have noticed a minor discrepancy between Figures 2-4 and 6-9: The sheet-edge detector in Figures 2 and 3 has reference character 17, while the sheet-edge detector in Figures 4 and 6-9 has reference character 12.

Applicants have provided Replacement Figures 4 and 6-9 which refer to sheet-edge detector 17, instead of sheet-edge detector 12. The specification has also been amended to reflect these changes.

E. Rejections under 35 USC § 102(b)

Claims 1, 3, 9-11 and 14 had been rejected as being anticipated by Okamoto (US 6,430,382). Okamoto had been cited to teach an image forming apparatus having a hole-punching processor that moves with the sheet-edge detector.

1. The sheet-edge detector of Okamoto is not fixed to the hole-punching device as recited in claims 1 and 9

The Examiner had cited Figures 6-8 to teach that hole-punching rollers 40 and 41 move with sheet-edge detector 43 to punch a hole in the sheet.

Hole-punching rollers 40 and 41 and sheet-edge detector 43 of Okamoto do not move in conjunction with each other to punch a hole in the sheet as recited in claims 1 and 9. Okamoto explains that sensor 43 is independently movable to adapt to a width of the sheet during operation (col. 9, lines 16-18). As shown in Figures 8A-8G, detector 43 independently moves in relation to right most roller 40 to give varying distances C1, C2 and C3 (col. 9, lines 19-37). In addition, Okamoto's description of the movement of detector 43 in relation to rollers 40 requires a complicated control (see multiple movements of detector 43 at col. 9, lines 19-37).

In contrast to Okamoto, the sheet-edge detector of the present invention is in a fixed relationship with the hole-punching device so that the hole-punching device moves in conjunction with the sheet-edge detector to punch a hole in the sheet. As discussed in section B above, the configuration of the hole-punching processor of the invention is simplified, and the positional relationship between the hole-punching device and the sheet-edge detector can be accurately maintained. Further, the complex algorithm of Okamoto that controls hole-punch processing is simplified by the present invention resulting in improved accuracy, reliability and reducing costs.

It is respectfully submitted that Okamoto does not anticipate the present invention since Okamoto does not teach a sheet-edge detector that is in a fixed relationship with, and moves in conjunction with, the hole-punching device.

F. Rejections under 35 USC § 103(a)

Claims 2 and 12 had been rejected as being unpatentable over Okamoto in view of Suzuki (US 5,182,861). Claims 4, 6, 7 and 13 had been rejected as being unpatentable over Okamoto in view of Kamada (US 4,789,903). Finally, claims 5 and 8 had been rejected as being unpatentable over Okamoto in view of Kamada and Suzuki.

Suzuki had been cited to teach multiple sheet edge detectors. Kamada had been cited to teach leading and trailing edge detectors.

Suzuki and Kamada do not cure the defects of Okamoto as discussed above. Applicants therefore respectfully submit that the present invention is patentable over all the cited references taken alone or in combination.


G. Conclusion

In view of the foregoing and the enclosed, it is respectfully submitted that the application is in condition

for allowance and such action is respectfully requested.
Should any extensions of time or fees be necessary in order
to maintain this Application in pending condition,
appropriate requests are hereby made and authorization is
given to debit Account # 02-2275.

Respectfully submitted,

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Encl: Replacement Figures 4 and 6-9